

Notice of Allowability

Application No.

10/707,384

Applicant(s)

CHEN ET AL.

Examiner

Art Unit

Kevin M. Nguyen

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 12/09/2003.
2. ☒ The allowed claim(s) is/are 1-8.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

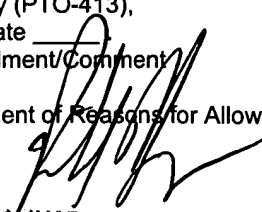
Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date See Continuation Sheet
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date ____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other ____.


RICHARD NIENPE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1300

Continuation of Attachment(s) 3. Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date: 4/27/04,8/8/05,7/23/06.

REASONS FOR ALLOWANCE

1. Claims 1-8 are allowed.
2. The following is an examiner's statement of reasons for allowance:

The present invention is directed to a liquid crystal display device which builds in the tables by actually measuring the over-driving voltages needed for properly driving the liquid crystal panel within a frame period. The tables include all the over-driving image data that drives the pixels from any gray scale to another so that the processor used to extract the brief table is no longer required. Additionally, the driving circuit and the driving method of the present invention is capable of selecting different tables according to gamma and temperature of the LCD panel for the LUT.

The closest prior art, Huang (US 6,172,465) discloses Kwon (US 5,729,297) discloses scanning line interpolator using a gamma correction memory includes a controller for outputting switching control signals according to an input video signal (see the abstract). Kim et al. (US 7,081,906) discloses "the gray level rearranging unit 57 determines whether the one frame-delayed original image is rearranged, using the comparison result provided from the minimal distribution lower gray level determining unit 55. If the minimal distribution lower gray level is equal to or less than the critical value of presentation, the one frame-delayed original image is not rearranged but supplied to the gamma correcting unit 59" (see column 17, lines 4-11).

The improvement comprises a driving for the LCD comprising the steps of: (a) measuring reaction curves of the pixels of the LCD panel switched from any gray scale value to other gray scale values in a frame period, and generating a standard table

according to the reaction curves measured; (b) measuring adjustment gray scale values of any gray scale value for different gammas; (c) generating a plurality of tables according to the adjustment gray scale values and the standard table; (d) applying scan voltages to the scan lines; (e) receiving image data from an image signal terminal; (f) delaying the image data for a frame period in order to generate delayed image data; (g) selecting a table from the standard table and the tables according to gamma; and (h) selecting an image data value from the selected table according to the current image data and the delayed image data and generating a data line voltage according to the image data value, applying the generated data line voltage on a corresponding data line.

And a driving for the LCD comprising the steps of: (a) applying scan voltages to the scan lines; (b) receiving image data from an image signal terminal; (c) delaying the image data for a frame period in order to generate delayed image data; (d) selecting a table from the standard table and the tables according to gamma; and (e) selecting an image data value from the selected table according to the current image data and the delayed image data, and generating a data line voltage according to the image data value, applying the generated data line voltage on a corresponding data line.

These patentable distinctions are included in all independent claims 1, 3, and 7.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEVIN M. NGUYEN whose telephone number is 571-272-7697. The examiner can normally be reached on MON-THU from 8:00-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, a supervisor RICHARD A. HJERPE can be reached on 571-272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8000.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the Patent Application Information Retrieval system, see <http://portal.uspto.gov/external/portal/pair>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KMN
September 21, 2006

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